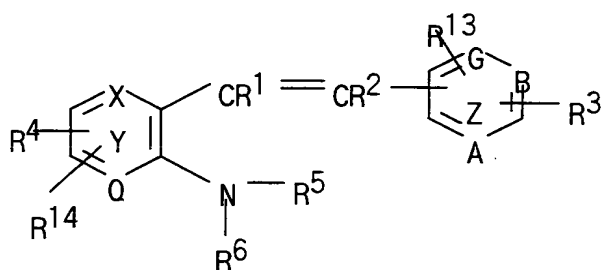


CLAIMS

1. A pharmaceutical composition for treating malignant tumor, which is administered in combination with another antitumor agent(s) and which comprises a compound of the formula (I) or a pharmaceutically acceptable salt thereof:



(I)

wherein R¹ and R² are the same or different and each represents hydrogen, alkyl of 1-6 carbon atoms, acyl of 1-6 carbon atoms, cyano, or -COOR (R represents hydrogen or C1-6 alkyl);

R³, R⁴, R¹³ and R¹⁴ are the same or different and each represents hydrogen, alkyl of 1-6 carbon atoms, alkoxy of 1-6 carbon atoms, halogenoalkoxy of 1-6 carbon atoms, acyl of 1-6 carbon atoms, acyloxy of 1-6 carbon atoms, hydroxy, halogen, nitro, cyano, amino, acylamino of 1-6 carbon atoms, aminoalkoxy of 1-6 carbon atoms, or morpholinoalkoxy with 1-6 carbon atoms in the alkyl moiety;

R³ and R¹³ or R⁴ and R¹⁴ may independently combine together to form methylenedioxy;

R⁵ represents (1) hydrogen, (2) alkyl of 1-6 carbon atoms which is optionally substituted by halogen, amino,

monoalkylamino of 1-6 carbon atoms, dialkylamino of 1-6 carbon atoms, morpholino, alkoxy of 1-6 carbon atoms, or hydroxy, (3) alkenyl of 2-6 carbon atoms which is optionally substituted by halogen, (4) alkynyl of 2-6 carbon atoms, or (5) acyl of 1-6 carbon atoms;

R^6 represents (1) aroyl of 7-11 carbon atoms which is optionally substituted by alkyl of 1-6 carbon atoms, alkoxy of 1-6 carbon atoms, or halogen or (2) arylsulfonyl of 6-10 carbon atoms which is optionally substituted by alkyl of 1-6 carbon atoms, alkoxy of 1-6 carbon atoms, halogenoalkoxy of 1-6 carbon atoms, hydroxy, nitro, or halogen; and

A, B, G, Q and X may be the same or different and each represents N, CH, $N \rightarrow O$, or $N^+-(R^7)E^-$ (R^7 represents alkyl of 1-6 carbon atoms or arylalkyl of 7-14 carbon atoms; E^- represents a counterion for N^+);

provided that those wherein A, B, and G concurrently represent N, and those wherein A, B, G, Q, and X concurrently represent CH are excluded; and when any of A, B, G, Q and X represents $N \rightarrow O$ or $N^+-(R^7)E^-$, only either of X or Q on Ring Y and/or only one of A, B and G on Ring Z can represent $N \rightarrow O$ or $N^+-(R^7)E^-$.

2. The pharmaceutical composition of claim 1, which comprises the compound of the formula (I) wherein R^1 and R^2 each represents hydrogen; R^3 , R^4 , R^{13} and R^{14} are the same or different and each represents hydrogen, acyl of 2-4 carbon atoms, halogen or hydroxy; R^5 represents hydrogen, alkyl of 1-3 carbon atoms substituted by hydroxy or acyl of 2-4 carbon atoms; R^6 represents phenylsulfonyl substituted by alkoxy of 1-3 carbon atoms; Ring Y is phenyl and Ring Z is 4-pyridyl or N-oxide thereof, or a pharmaceutically

acceptable salt thereof.

3. The pharmaceutical composition of claim 2, which comprises the compound of the formula (I) wherein R^1 and R^2 each represents hydrogen; R^3 , R^4 , R^{13} and R^{14} are the same or different and each represents hydrogen, acetyl, fluorine or hydroxy; R^5 represents hydrogen, ethyl substituted by hydroxy or acetyl; R^6 represents phenylsulfonyl substituted by methoxy; Ring Y is phenyl and Ring Z is 4-pyridyl or N-oxide thereof, or a pharmaceutically acceptable salt thereof.

4. The pharmaceutical composition of claim 3, wherein the compound of the formula (I) is a compound selected from the group consisting of:

(E)-4-[2-[2-[N-[(p-methoxyphenyl)sulfonyl]amino]-phenyl]ethenyl]pyridine,

(E)-4-[2-[2-[N-[(p-methoxyphenyl)sulfonyl]amino]-phenyl]ethenyl]pyridine 1-oxide,

(E)-4-[2-[2-[N-(2-hydroxyethyl)-N-[(p-methoxyphenyl)sulfonyl]amino]phenyl]ethenyl]pyridine 1-oxide,

(E)-4-[2-[2-[N-(2-hydroxyethyl)-N-[(p-methoxyphenyl)sulfonyl]amino]phenyl]ethenyl]pyridine,

(E)-4-[2-[2-[N-acetyl-N-[(p-methoxyphenyl)sulfonyl]amino]phenyl]ethenyl]pyridine 1-oxide, and

(E)-4-[2-[2-[N-acetyl-N-[(p-methoxyphenyl)sulfonyl]amino]phenyl]ethenyl]pyridine, or a pharmaceutically acceptable salt thereof.

5. The pharmaceutical composition of any one of claims 1 to 4, wherein the other antitumor agent is selected from the group consisting of platinum compounds, topoisomerase acting agents, microtubule acting agents and

antitumor antibiotics.

6. The pharmaceutical composition of any one of claims 1 to 5, which is administered simultaneously with another antitumor agent.

5 7. The pharmaceutical composition of any one of claims 1 to 5, which further contains another antitumor agent.

8. The pharmaceutical composition of any one of claims 1 to 5, wherein the other antitumor agent is
10 administered sequentially.

9. A kit for combined administration for the treatment of malignant tumor, which comprises a preparation containing a compound of the formula (I) wherein R^1 , R^2 , R^3 , R^4 , R^{13} , R^{14} , R^5 , R^6 , A, B, G, Q and X are the same as
15 defined above, or a pharmaceutically acceptable salt thereof, and a preparation comprising another antitumor agent.

10. A pharmaceutical composition for treating malignant tumor, which is administered in combination with
20 radiotherapy for malignant tumor and which comprises a compound of the formula (I) wherein R^1 , R^2 , R^3 , R^4 , R^{13} , R^{14} , R^5 , R^6 , A, B, G, Q and X are the same as defined above, or a pharmaceutically acceptable salt thereof.

11. The pharmaceutical composition according to claim
25 10, which is administered simultaneously with application of radiotherapy.

12. The pharmaceutical composition according to claim 10, which is administered before or after application of radiotherapy.

30 13. A method for treating a patient suffering from

malignant tumor comprising administering a therapeutically effective amount of the compound of the formula (I) wherein R^1 , R^2 , R^3 , R^4 , R^{13} , R^{14} , R^5 , R^6 , A, B, G, Q and X are the same as defined above, or a pharmaceutically acceptable salt thereof in combination with another antitumor agent(s) to the patient in need thereof.

14. The method of claim 13, wherein the other antitumor agent is selected from the group consisting of platinum compounds, topoisomerase acting agents, microtubule acting agents and antitumor antibiotics.

15. The method of claim 13 or 14, wherein a therapeutically effective amount of a compound of the formula (I) wherein R^1 , R^2 , R^3 , R^4 , R^{13} , R^{14} , R^5 , R^6 , A, B, G, Q and X are as defined above, or a pharmaceutically acceptable salt thereof is administered simultaneously with another antitumor agent.

16. The method of claim 13 or 14, wherein a therapeutically effective amount of a compound of the formula (I) wherein R^1 , R^2 , R^3 , R^4 , R^{13} , R^{14} , R^5 , R^6 , A, B, G, Q and X are as defined above, or a pharmaceutically acceptable salt thereof is administered in combination with another antitumor agent sequentially.

17. A method for treating malignant tumor, comprising administering to a patient undergoing radiotherapy for malignant tumor an effective amount of a compound of the formula (I) wherein R^1 , R^2 , R^3 , R^4 , R^{13} , R^{14} , R^5 , R^6 , A, B, G, Q and X are as defined above, or a pharmaceutically acceptable salt thereof.

18. The method of claim 17, wherein the administration of a compound of the formula (I) wherein R^1 ,

R^2 , R^3 , R^4 , R^{13} , R^{14} , R^5 , R^6 , A, B, G, Q and X are as defined above, or a pharmaceutically acceptable salt thereof is conducted simultaneously with radiotherapy.

5 19. The method of claim 17, wherein the administration of a compound of the formula (I) wherein R^1 , R^2 , R^3 , R^4 , R^{13} , R^{14} , R^5 , R^6 , A, B, G, Q and X are as defined above, or a pharmaceutically acceptable salt thereof is conducted before or after radiotherapy.

10 20. Use of a compound of the formula (I) wherein R^1 , R^2 , R^3 , R^4 , R^{13} , R^{14} , R^5 , R^6 , A, B, G, Q and X are as defined above, or a pharmaceutically acceptable salt thereof for manufacturing a medicament for treating malignant tumor which is administered in combination with another antitumor agent.

15 21. Use of a combination of a compound of the formula (I) wherein R^1 , R^2 , R^3 , R^4 , R^{13} , R^{14} , R^5 , R^6 , A, B, G, Q and X are as defined above, or a pharmaceutically acceptable salt thereof and another antitumor agent for manufacturing a medicament for treating malignant tumor.

20 22. Use of claim 20 or 21, wherein the other antitumor agent is selected from the group consisting of platinum compounds, topoisomerase acting agents, microtubule acting agents and antitumor antibiotics.

25 23. Use of a compound of the formula (I) wherein R^1 , R^2 , R^3 , R^4 , R^{13} , R^{14} , R^5 , R^6 , A, B, G, Q and X are as defined above, or a pharmaceutically acceptable salt thereof for manufacturing a medicament for treating malignant tumor which is administered in combination with radiotherapy for malignant tumor.